

SEQUENCE LISTING

<110> Bioteknologisk Institut

<120> Mucor Recombinant Gene Expression

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<170> PatentIn Ver. 2.1

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<213> Mucor circinelloides

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Tyr Thr Gln Leu Leu Thr Glu Leu His Asn Glu Tyr Cys Ala Glu Gln	
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ProAsn Asp Thr Ser Asn Asp Leu His Pro Leu Cys Glu Gln Pro Gln	
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Gly His Pro Asn Asp His Gly Ala Leu His Asp Asp Asp Asp Pro	
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Val Lys Cys Arg Glu His Gly Thr Gln Arg Gln Pro Arg Leu Cys Gln	
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Gly His His Pro Gln Ile Ser Gly Thr Ser Glu Arg Ile Lys Val Ser	
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Phe Glu Asp Gly Gln Glu Val Val Lys Gln Gly Asp Val Gly Asp Gln	
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Phe Tyr Ile Ile Glu Ser Gly Glu Ala Ile Val Leu Lys Glu Glu Asn	
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Glu Leu	
gcc ctg tta aac gat gct cct cga gct gca acc gta gtt gct cac ggc	1813
Ala Leu Leu Asn Asp Ala Pro Arg Ala Ala Thr Val Val Ala His Gly	
370 375 380	
aga ctc aag tgc gct aca ctg ggc aaa aag gca ttc act cgt ctt ctt	1861
Arg Leu Lys Cys Ala Thr Leu Gly Lys Lys Ala Phe Thr Arg Leu Leu	
385 390 395	
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Gly Pro Val Leu Asp Ile Leu Lys Arg Asn Ser Glu Asn Tyr His Ala	
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Val Ile Asn Gln Gln Ser	
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<213> Mucor circinelloides

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 35 40 45

Glu Glu Gln Arg Leu Glu His Arg Asn Asn His His Ser ProAsn Asp
 50 55 60

Thr Ser Asn Asp Leu His Pro Leu Cys Glu Gln Pro Gln Glu Asp Phe
 65 70 75 80

Ser Gln Gln Gln Gly Ile Gln Trp Glu Thr Thr His Met Gly His Pro
 85 90 95

Asn Asp His Gly Ala Leu His Asp Asp Asp Asp Asp Pro Leu Glu Asp
 100 105 110

Glu Asp Asp Glu Glu Phe Asp Lys Phe Ser Thr Glu Pro Leu Pro Ser
 115 120 125

Leu Pro Pro Thr Asn Tyr Asn Arg Gly Arg Arg Thr Ser Val Lys Cys
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Ser Pro Ser Ser Gln Thr Xaa Met Asp Asp Phe Glu Ile Lys Gln Pro
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ata ggt aac aga tgg acg gca tct gca tgt act gtt act gat aga cac 144
Ile Gly Asn Arg Trp Thr Ala Ser Ala Cys Thr Val Thr Asp Arg His
35 40 45

ctg ctt caa ggc tac gga tca tct gcc atg gtt tat agc gca gtg tat 192
Leu Leu Gln Gly Tyr Gly Ser Ser Ala Met Val Tyr Ser Ala Val Tyr
50 55 60

ata cct cac aac aaa cgg gtc gcc atc aag gtg att gat ctg gac atg 240
Ile Pro His Asn Lys Arg Val Ala Ile Lys Val Ile Asp Leu Asp Met
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Phe Glu Arg Asn Gln Ile Asp Glu Leu Arg Val
85 90

ggattccctt cttattgaca aaacgtatat atng aga gag aca gcc ttg atg gct 348
Arg Glu Thr Ala Leu Met Ala
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ctg tcc aag cat cca cat gtg ttg cga gtc tac ggc tca ttt gtc cac 396
Leu Ser Lys His Pro His Val Leu Arg Val Tyr Gly Ser Phe Val His
100 105 110

gga tcc aag ctg tac att gtc act cct tat atg gca gta gga tcc tgt 444
Gly Ser Lys Leu Tyr Ile Val Thr Pro Tyr Met Ala Val Gly Ser Cys
115 120 125 130

ctc gat atc atg aag ttg agt ttc ccc gac ggc cta gac gag att agc 492
Leu Asp Ile Met Lys Leu Ser Phe Pro Asp Gly Leu Asp Glu Ile Ser
135 140 145

att gct act atc cta aaa cag gca ctg gaa gga cta gcc tat ttg cac 540
Ile Ala Thr Ile Leu Lys Gln Ala Leu Glu Gly Leu Ala Tyr Leu His
150 155 160

aaa aat ggc cac atc cat cga gac gta aag gca ggc aac ctg ctg atg 588
Lys Asn Gly His Ile His Arg Asp Val Lys Ala Gly Asn Leu Leu Met
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 35 40 45

Leu Leu Gln Gly Tyr Gly Ser Ser Ala Met Val Tyr Ser Ala Val Tyr
 50 55 60

Ile Pro His Asn Lys Arg Val Ala Ile Lys Val Ile Asp Leu Asp Met
 65 70 75 80

Phe Glu Arg Asn Gln Ile Asp Glu Leu Arg Val Arg Glu Thr Ala Leu
 85 90 95

Met Ala Leu Ser Lys His Pro His Val Leu Arg Val Tyr Gly Ser Phe
 100 105 110

Val His Gly Ser Lys Leu Tyr Ile Val Thr Pro Tyr Met Ala Val Gly
 115 120 125

Ser Cys Leu Asp Ile Met Lys Leu Ser Phe Pro Asp Gly Leu Asp Glu
 130 135 140

Ile Ser Ile Ala Thr Ile Leu Lys Gln Ala Leu Glu Gly Leu Ala Tyr
 145 150 155 160

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Ser Gly Gln Pro Leu Thr Asp Ala His Phe Gln Tyr Phe Val Tyr Gln
          20             25             30

atc tgc aga gga cta aag tac att cac agt gcc aat gtaagcatat 143
Ile Cys Arg Gly Leu Lys Tyr Ile His Ser Ala Asn
    35             40

atagacgatt tgacaacatg cgtattaatg tgctttgctc tcaaag gtg ttg cat 198
                               Val Leu His
                               45

cga gat ctc aag cca ggt aaa tta cga ata aac ggc ata aca cag atc 246
Arg Asp Leu Lys Pro Gly Lys Leu Arg Ile Asn Gly Ile Thr Gln Ile
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ac gtcgtgatat ttatcatgtg ataatttata aacaggcaac ctcttgtca 298
Thr

acgctgattg cgaattaaag gtaaggaaac acaggggtgca gacaattcgt acatgtatta 358

aatcgag g gaa cca aag att tgt gat ttc ggc ttg gct cgt ggc tat tct 408
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65

70

75

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Ile Cys Arg Gly Leu Lys Tyr Ile His Ser Ala Asn Val Leu His Arg
 35 40 45

Asp Leu Lys Pro Gly Lys Leu Arg Ile Asn Gly Ile Thr Gln Ile Thr
 50 55 60

Glu Pro Lys Ile Cys Asp Phe Gly Leu Ala Arg Gly Tyr Ser Glu Asn
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 Leu Lys Arg Phe Ala Leu Pro Gly Gly Ser Ala Ala Ala Ala Pro Gly

30

aac gac ctg ttc ttc atc aca ggc acc gac att gtg cgc tcg ctg acc 192
Asn Asp Leu Phe Phe Ile Thr Gly Thr Asp Ile Val Arg Ser Leu Thr
50 55 60

ttt cgc ttc cat gcg ttt ggc cga ccc gtt acg aac gca aag aag ttt 240
Phe Arg Phe His Ala Phe Gly Arg Pro Val Thr Asn Ala Lys Lys Phe
65 70 75 80

gaa gag ggc ata ttt tct gat ttg cgc aac tta aaa cca ggt cat gat 288
Glu Glu Gly Ile Phe Ser Asp Leu Arg Asn Leu Lys Pro Gly His Asp
85 90 95

gct cgg ttg gag gaa ccc aaa tct gaa ttg ctg gac atg ctc tac aag 336
Ala Arg Leu Glu Glu Pro Lys Ser Glu Leu Leu Asp Met Leu Tyr Lys
100 105 110

aac aat tgc atc cgc aca caa aaa aaa caa aaa gta ttt ttc tgg ttt 384
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35 40 45

Asn Asp Leu Phe Phe Ile Thr Gly Thr Asp Ile Val Arg Ser Leu Thr
50 55 60

Phe Arg Phe His Ala Phe Gly Arg Pro Val Thr Asn Ala Lys Lys Phe
65 70 75 80

Glu Glu Gly Ile Phe Ser Asp Leu Arg Asn Leu Lys Pro Gly His Asp
85 90 95

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Ala Asp Phe Thr Asp Ser Leu Ile Lys Asn Ile Gly Val His Ser Ser
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tct cct gtc atg aca tct gtc aat atg ggt caa ttg ggt gaa aag ctt 632
Ser Pro Val Met Thr Ser Val Asn Met Gly Gln Leu Gly Glu Lys Leu
20 25 30
cgt caa gct cgt aca aca aca ctt gct tcc tta tct caa gct ctt tca 680
Arg Gln Ala Arg Thr Thr Thr Leu Ala Ser Leu Ser Gln Ala Leu Ser
35 40 45
aag aag ccc gaa gct gct gct gct gct gcc act gcc ccc aac gct gtt 728
Lys Lys Pro Glu Ala Ala Ala Ala Ala Thr Ala Pro Asn Ala Val
50 55 60 65
aat gaa agt acc acc aca ccc acc aca atg caa ctc cct gct tcg gaa 776
Asn Glu Ser Thr Thr Thr Pro Thr Thr Met Gln Leu Pro Ala Ser Glu
70 75 80
aaa gcc act agt caa ttg gag atc aat gtg gtt gaa gct cgt aat ttg 824
Lys Ala Thr Ser Gln Leu Glu Ile Asn Val Val Glu Ala Arg Asn Leu
85 90 95
acc att gct gat gcg cgc aaa gcc gac acc tac tgt att gtt cat tac 872
Thr Ile Ala Asp Ala Arg Lys Ala Asp Thr Tyr Cys Ile Val His Tyr
100 105 110
gaa ggc aac acc aca tca acg ctt gat aaa gta gat gat ggc atc ttg 920
Glu Gly Asn Thr Thr Ser Thr Leu Asp Lys Val Asp Asp Gly Ile Leu

115	120	125	
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Pro Ser Thr Pro Leu Val Ile Lys Ser Gln Val Ala Ser Gly Ala Phe			
130	135	140	145
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Lys Ala Phe Glu Ile Met Met Ser Ala Ser Ser Pro Lys Trp Met His			
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Arg Val Asn Phe			
	165		
taaccatggt actatag t gat gta act gct ggt aac aag gag atc act gtg			1118
	Asp Val Thr Ala Gly Asn Lys Glu Ile Thr Val		
		170	175
ttt gtc tat gat cgt ggt aac aaa ttg ccc aat ggt gaa gat cgc ttc			1166
Phe Val Tyr Asp Arg Gly Asn Lys Leu Pro Asn Gly Glu Asp Arg Phe			
	180	185	190
ttg ggc atg tct agc att gtt ccc aac ttg gtc aac aag aag acg gtc			1214
Leu Gly Met Ser Ser Ile Val Pro Asn Leu Val Asn Lys Lys Thr Val			
	195	200	205
gag ctg atc ttt cct ctt cac ggc cgt cct gac gat gat caa gaa gtt			1262
Glu Leu Ile Phe Pro Leu His Gly Arg Pro Asp Asp Asp Gln Glu Val			
	210	215	220
act ggt gat gtc cgt ctt caa gtt act ttt atc gac cct aaa aag			1307
Thr Gly Asp Val Arg Leu Gln Val Thr Phe Ile Asp Pro Lys Lys			
	225	230	235
gtaattttat atgagtatga ttcttgacag ctgatgtctg acacttctaa aaccctattc			1367
aag gct aat ctt aag cca gag gat ttc cgc att gtg cgt atg att ggt			1415
Ala Asn Leu Lys Pro Glu Asp Phe Arg Ile Val Arg Met Ile Gly			
	240	245	250
caa ggc tca gtg ggt aag gtg tat gag gtg atc aag cgt gat tct ggc			1463
Gln Gly Ser Val Gly Lys Val Tyr Glu Val Ile Lys Arg Asp Ser Gly			
	255	260	265
cgt acc tat gcc atg aag gtg ctc tct aag cgt ctc ttg ctc gcc gag			1511
Arg Thr Tyr Ala Met Lys Val Leu Ser Lys Arg Leu Leu Leu Ala Glu			
	275	280	285
aat gaa gtc gat act gcc ttc aac gag cgc aat gtg ctg gtt cag tct			1559
Asn Glu Val Asp Thr Ala Phe Asn Glu Arg Asn Val Leu Val Gln Ser			
	290	295	300
ctc tca agc cct ttc att gcc aat ctc aag tac agt ttc caa aca aca			1607
Leu Ser Ser Pro Phe Ile Ala Asn Leu Lys Tyr Ser Phe Gln Thr Thr			
	305	310	315
aac cat ctc ttc ttg gtt atg gat tac ttt ccg ggt ggc gaa ttg ttt			1655
Asn His Leu Phe Leu Val Met Asp Tyr Phe Pro Gly Gly Glu Leu Phe			
	320	325	330

gat ttc ctg gag cgt gag cgt tgt ttg agc gag aag cgt tgc caa ttc	1703
Asp Phe Leu Glu Arg Glu Arg Cys Leu Ser Glu Lys Arg Cys Gln Phe	
335 340 345 350	
ttt gct gcc gag att gtg tgt gcc ttt gac aac atc cat gct cgc aac	1751
Phe Ala Ala Glu Ile Val Cys Ala Phe Asp Asn Ile His Ala Arg Asn	
355 360 365	
att gtc tat cgt aac ctg aag cca gag agc atc ttg ctg gat gca cat	1799
Ile Val Tyr Arg Asn Leu Lys Pro Glu Ser Ile Leu Leu Asp Ala His	
370 375 380	
gga cac att gcc ttg aca gat ttc ggc tta tgc aag caa ttg aag aac	1847
Gly His Ile Ala Leu Thr Asp Phe Gly Leu Cys Lys Gln Leu Lys Asn	
385 390 395	
aag atg gat ttg att caa ggt gtg cct caa gtc att aca caa gaa tac	1895
Lys Met Asp Leu Ile Gln Gly Val Pro Gln Val Ile Thr Gln Glu Tyr	
400 405 410	
ctc gcc cct gaa atg gta atg caa aag ccc tat ggc atg gct gcc gac	1943
Leu Ala Pro Glu Met Val Met Gln Lys Pro Tyr Gly Met Ala Ala Asp	
415 420 425 430	
tgg tgg agt ctc ggt gtt ttg atg ttt gag ctg ttg act gga tct cct	1991
Trp Trp Ser Leu Gly Val Leu Met Phe Glu Leu Leu Thr Gly Ser Pro	
435 440 445	
cct ttc cat tct gtt gaa caa ggt gaa ttg ttt aga caa atc ctg gaa	2039
Pro Phe His Ser Val Glu Gln Gly Glu Leu Phe Arg Gln Ile Leu Glu	
450 455 460	
gct ccc att aaa ttc cct gct ggg ggc tgc att aca gag gaa gcc aag	2087
Ala Pro Ile Lys Phe Pro Ala Gly Gly Cys Ile Thr Glu Glu Ala Lys	
465 470 475	
gat ttc atc tgc caa ctg ctg gag cgt gat cct gcc aag cgt ctg ggc	2135
Asp Phe Ile Cys Gln Leu Leu Glu Arg Asp Pro Ala Lys Arg Leu Gly	
480 485 490	
tcc cat ggt gat gtt gct cag gtc aaa gca cat cca ttc ttt aag gat	2183
Ser His Gly Asp Val Ala Gln Val Lys Ala His Pro Phe Phe Lys Asp	
495 500 505 510	
ctc aac tgg gat gtc gtt tac aag aag caa atg cag ctt ccc ttt gtg	2231
Leu Asn Trp Asp Val Val Tyr Lys Lys Gln Met Gln Leu Pro Phe Val	
515 520 525	
ccc gag gta gaa gag cag ctc cgc gaa gaa gcc att gct gct gct gct	2279
Pro Glu Val Glu Glu Gln Leu Arg Glu Glu Ala Ile Ala Ala Ala Ala	
530 535 540	
gcc att agc att cct gtg acc aac agc aag acc gag tct acc aat gcc	2327
Ala Ile Ser Ile Pro Val Thr Asn Ser Lys Thr Glu Ser Thr Asn Ala	
545 550 555	
aat gtg atg cct gtg gct gat caa tcc aaa ttc aag gga ttt agc tat	2375
Asn Val Met Pro Val Ala Asp Gln Ser Lys Phe Lys Gly Phe Ser Tyr	

570

aat cct gag gat gaa gat ccc gaa gtt gat ttc tgg ttt aga cag taa 2471
Asn Pro Glu Asp Glu Asp Pro Glu Val Asp Phe Trp Phe Arg Gln
595 600 605

tcaataaaagc acatatttqt tcatatacca aaaaaaaaaa aaaaaaa 2578

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<210> 12
<211> 605
<212> PRT
<213> Mucor circinelloides
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Ser	Ser	Pro	Val	Met	Thr	Ser	Val	Asn	Met	Gly	Gln	Leu	Gly	Glu	Lys
			20					25					30		
Leu	Arg	Gln	Ala	Arg	Thr	Thr	Thr	Leu	Ala	Ser	Leu	Ser	Gln	Ala	Leu
		35					40					45			
Ser	Lys	Lys	Pro	Glu	Ala	Ala	Ala	Ala	Ala	Ala	Thr	Ala	Pro	Asn	Ala
50						55					60				
Val	Asn	Glu	Ser	Thr	Thr	Thr	Pro	Thr	Thr	Met	Gln	Leu	Pro	Ala	Ser
65					70					75					80
Glu	Lys	Ala	Thr	Ser	Gln	Leu	Glu	Ile	Asn	Val	Val	Glu	Ala	Arg	Asn
				85					90					95	
Leu	Thr	Ile	Ala	Asp	Ala	Arg	Lys	Ala	Asp	Thr	Tyr	Cys	Ile	Val	His
			100					105					110		
Tyr	Glu	Gly	Asn	Thr	Thr	Ser	Thr	Leu	Asp	Lys	Val	Asp	Asp	Gly	Ile
		115					120					125			
Leu	Pro	Ser	Thr	Pro	Leu	Val	Ile	Lys	Ser	Gln	Val	Ala	Ser	Gly	Ala
130						135					140				
Phe	Lys	Ala	Phe	Glu	Ile	Met	Met	Ser	Ala	Ser	Ser	Pro	Lys	Trp	Met
145					150					155					160
His	Arg	Val	Asn	Phe	Asp	Val	Thr	Ala	Gly	Asn	Lys	Glu	Ile	Thr	Val
				165					170					175	
Phe	Val	Tyr	Asp	Arg	Gly	Asn	Lys	Leu	Pro	Asn	Gly	Glu	Asp	Arg	Phe
			180					185					190		
Leu	Gly	Met	Ser	Ser	Ile	Val	Pro	Asn	Leu	Val	Asn	Lys	Lys	Thr	Val
		195					200					205			
Glu	Leu	Ile	Phe	Pro	Leu	His	Gly	Arg	Pro	Asp	Asp	Asp	Gln	Glu	Val
		210				215					220				
Thr	Gly	Asp	Val	Arg	Leu	Gln	Val	Thr	Phe	Ile	Asp	Pro	Lys	Lys	Ala
225					230					235					240
Asn	Leu	Lys	Pro	Glu	Asp	Phe	Arg	Ile	Val	Arg	Met	Ile	Gly	Gln	Gly
				245					250					255	
Ser	Val	Gly	Lys	Val	Tyr	Glu	Val	Ile	Lys	Arg	Asp	Ser	Gly	Arg	Thr
			260					265					270		
Tyr	Ala	Met	Lys	Val	Leu	Ser	Lys	Arg	Leu	Leu	Leu	Ala	Glu	Asn	Glu
		275					280					285			
Val	Asp	Thr	Ala	Phe	Asn	Glu	Arg	Asn	Val	Leu	Val	Gln	Ser	Leu	Ser
	290					295					300				

Ser	Pro	Phe	Ile	Ala	Asn	Leu	Lys	Tyr	Ser	Phe	Gln	Thr	Thr	Asn	His
305					310					315					320
Leu	Phe	Leu	Val	Met	Asp	Tyr	Phe	Pro	Gly	Gly	Glu	Leu	Phe	Asp	Phe
				325					330					335	
Leu	Glu	Arg	Glu	Arg	Cys	Leu	Ser	Glu	Lys	Arg	Cys	Gln	Phe	Phe	Ala
			340					345					350		
Ala	Glu	Ile	Val	Cys	Ala	Phe	Asp	Asn	Ile	His	Ala	Arg	Asn	Ile	Val
		355					360					365			
Tyr	Arg	Asn	Leu	Lys	Pro	Glu	Ser	Ile	Leu	Leu	Asp	Ala	His	Gly	His
	370					375					380				
Ile	Ala	Leu	Thr	Asp	Phe	Gly	Leu	Cys	Lys	Gln	Leu	Lys	Asn	Lys	Met
385				390						395					400
Asp	Leu	Ile	Gln	Gly	Val	Pro	Gln	Val	Ile	Thr	Gln	Glu	Tyr	Leu	Ala
			405						410					415	
Pro	Glu	Met	Val	Met	Gln	Lys	Pro	Tyr	Gly	Met	Ala	Ala	Asp	Trp	Trp
			420					425					430		
Ser	Leu	Gly	Val	Leu	Met	Phe	Glu	Leu	Leu	Thr	Gly	Ser	Pro	Pro	Phe
		435				440						445			
His	Ser	Val	Glu	Gln	Gly	Glu	Leu	Phe	Arg	Gln	Ile	Leu	Glu	Ala	Pro
	450				455					460					
Ile	Lys	Phe	Pro	Ala	Gly	Gly	Cys	Ile	Thr	Glu	Glu	Ala	Lys	Asp	Phe
465				470						475					480
Ile	Cys	Gln	Leu	Leu	Glu	Arg	Asp	Pro	Ala	Lys	Arg	Leu	Gly	Ser	His
			485						490					495	
Gly	Asp	Val	Ala	Gln	Val	Lys	Ala	His	Pro	Phe	Phe	Lys	Asp	Leu	Asn
		500						505					510		
Trp	Asp	Val	Val	Tyr	Lys	Lys	Gln	Met	Gln	Leu	Pro	Phe	Val	Pro	Glu
	515						520					525			
Val	Glu	Glu	Gln	Leu	Arg	Glu	Glu	Ala	Ile	Ala	Ala	Ala	Ala	Ala	Ile
	530					535					540				
Ser	Ile	Pro	Val	Thr	Asn	Ser	Lys	Thr	Glu	Ser	Thr	Asn	Ala	Asn	Val
545				550						555					560
Met	Pro	Val	Ala	Asp	Gln	Ser	Lys	Phe	Lys	Gly	Phe	Ser	Tyr	Ile	Arg
			565						570					575	
Glu	Asp	Val	Met	Ala	Lys	Lys	Gly	Glu	His	Arg	Leu	Gly	Val	Asn	Pro
		580					585						590		
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	595					600						605			

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<210> 13
<211> 927
<212> DNA
<213> Mucor circinelloides
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caacaagagc	cattaacgtg	gacagatttg	cccttttgtg	agtactcaaa	ttagtcaagt	180
gatagactca	cacactcaca	ctcacacaaa	cctctagatg	aagatccctc	tctctgatgt	240
acaccaacta	caccatctat	atttacagtg	aataacaaca	accctatgta	tatcccttct	300
tctgcctcaa	atgctacaca	caccgcatct	actacacata	ctactaatac	acaaatcata	360
tctgccgaag	cactgcaaat	tggtacctgg	aagagaatga	catttgaaac	caatgacctc	420
tcatgccagt	tcgatagaga	cagcaaactc	ttcagctggt	gcattccaaga	cgggtatttcc	480
aagttcaaaa	tggaattccc	acaagaattt	gtgcaatcca	tcaagctatc	acccttaaca	540
agtcgacctg	gctgggcaga	ttggagatga	atgtactatc	tactcaacac	atcttgtttc	600
acatggagac	gccgcaacaa	agctggattc	aatgccgcga	ctacactgaa	gacaagcagg	660
cttcctcat	cagcctgcac	caactagacg	gccctgcact	tgcatataaa	gcagaactag	720

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aatccctctc taaggaaaac gactatctag ctaccatcat tcattaattt gcatatcatt 780
gattggtgcg cctgattaaa attgtgtaat ataaaaatacc atgttgacct ctccccctcc 840
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aatcaacttt ctaaacaccc tataaaa 927

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<210> 14
<211> 419
<212> DNA
<213> Mucor circinelloides

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<400> 14
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cttgggtcgt cttgggtggca taaattggaa aaactgggtt ttccgttcac aaggtcccat 180
tttccgtgga aagtctaaaa tcgactgact tttttccaat gaggaaagcc tggaggaggt 240
cgacttgtat cacaacaagg ttgcttatga aatcaacaga gtcacatccc gtctaaaacc 300
cagtttggtat ccgttttctt cgcttctatc tgtgggtgcg aggatttggt ataaaaagga 360
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<210> 15
<211> 24
<212> DNA
<213> Artificial Sequence

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<220>
<223> Description of Artificial Sequence:
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<400> 15
ggngaytayt tytaygtngt ngar 24

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<210> 16
<211> 24
<212> DNA
<213> Artificial Sequence

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<220>
<223> Description of Artificial Sequence:
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<400> 16
raangtnach ckrtcnarng ccca 24

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<210> 17
<211> 36
<212> DNA
<213> Artificial Sequence

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<220>
<223> Description of Artificial Sequence:
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<400> 17
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<210> 18
<211> 42
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence:
oligonucleotide primer

<400> 18
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<210> 19
<211> 21
<212> DNA
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<220>
<223> Description of Artificial Sequence:
oligonucleotide primer

<400> 19
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<210> 20
<211> 24
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<223> Description of Artificial Sequence:
oligonucleotide primer

<400> 20
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<210> 21
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<220>
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oligonucleotide primer

<400> 21
raaccaraar aanacyttyt gytytytytg ng 33

<210> 22
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<223> Description of Artificial Sequence:
oligonucleotide primer

<400> 22
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<210> 23
<211> 24
<212> DNA
<213> Artificial Sequence

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oligonucleotide primer

<400> 23
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<210> 24
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
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oligonucleotide primer

<400> 24
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<210> 25
<211> 21
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<400> 25
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<210> 26
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<220>
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primer

<400> 26
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<210> 27
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
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oligonucleotide primer

<400> 27
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<210> 28
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
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primer

<400> 28
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<210> 29
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<212> DNA
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<400> 29
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<210> 30
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<220>
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oligonucleotide primer

<400> 30
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<210> 31
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<212> DNA
<213> Artificial Sequence

<220>
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<400> 31
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<210> 32
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oligonucleotide primer

<400> 32
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<210> 33
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oligonucleotide primer

<400> 33
ccttgggggtt ttcgagggag g 21

<210> 34
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<212> DNA
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<400> 34
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<210> 35
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<212> DNA
<213> Artificial Sequence

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<400> 35
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